

Remarks

Claims 223 and 511 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Morishita et al. (US Pat. No.: 5,757,175). Specifically, the Examiner states:

As to claim 223, Morishita et al. discloses in figures 17 and 19 a voltage reference circuit responsive to an external voltage (ExtVcc) for supplying a reference voltage (INVcc), comprising: an active reference circuit (VGR, figure 19) for receiving the external voltage and for producing a reference signal (Vref) having a desired relationship with the external voltage, the active reference circuit comprising a current source (TP4) utilizing a current mirror for providing current to a diode stack (CVC) having an adjustable impedance, wherein the reference signal is dependent upon the external voltage (column 2, lines 17-20, teaches that the reference voltage Vref is independent of the external power supply voltage EXVcc when the voltage EXVcc is at least at a prescribed voltage level. Thus, when the voltage EXVcc is lower than the prescribed voltage level, the reference voltage is dependent of the external supply voltage EXVcc); and a unity gain amplifier (CMP, DT) responsive to the reference signal for producing the reference voltage.

It is respectfully submitted that the Examiner has misinterpreted the teachings of Morishita. More specifically, Morishita discloses that the reference voltage (Vref) is equal to a current I multiplied by a resistance value Rc (i.e., $V_{ref} = I \cdot R_c$). Morishita specifically states, "this current I is constant current independent of the external power supply voltage EXVcc." (Column 6, lines 1 - 8.)

Morishita discloses that the current I is produced from a constant current generating circuit (CCG) and then is converted into a voltage by a current/voltage converting circuit (CVC) to produce the reference voltage Vref. (Figure 19; column 3, lines 38 – 40.) Morishita further discloses that a start-up circuit (STC) activates the constant current generating operation of the CCG circuit when the external power supply voltage EXVcc attains a prescribed potential level. (Column 3, lines 41 – 44.) Morishita states:

[s]tart-up circuit STC stops the constant current generating operation as well as suppresses potential rise at internal node NB when the external power supply voltage EXVcc is unstable upon application thereof, and stops that operation when the constant current generating operation becomes possible by potential rise at internal node ND with increase in external power supply voltage EXVcc after application thereof.

(Column 4, lines 60 – 67.) Accordingly, the reference voltage Vref is dependent upon the constant current I which is independent from the external voltage EXVcc. Thus, Vref is independent from the external voltage EXVcc.

On the contrary, claims 223 and 511 recite a reference signal that is dependent upon an external voltage. More specifically, claim 223 recites: "wherein said reference signal is dependent upon said external voltage" and claim 511 recites: "wherein said reference signal is dependent upon said external voltage within a predetermined testing margin of error." Thus, for the reasons discussed above, it is believed that claims 223 and 511 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 223 and 511 pursuant to §102(e) in view of Morishita be withdrawn.

Claims 225, 496, 499, 500, and 514 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Morishita in view of Zarrabian (US Pat. No.: 5,838,076). Claim 225 is dependent from claim 223. As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage" as recited in claim 223. It is respectfully submitted that Zarrabian fails to supply the missing teachings. Accordingly, it is believed that claim 225 is in condition for allowance and it is respectfully requested that the rejection of claim 225 be withdrawn.

Claim 496, like allowable claim 223, recites "wherein said signal is dependent upon said external voltage." For the same reasons discussed above in conjunction with claim 223, it is believed that claim 496 is in condition for allowance. Claims 499, 500, and 514 depend from allowable claim 496, and thus, are also in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 496, 499, 500, and 514 be withdrawn.

Claims 228 – 230 and 501 – 503 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Morishita in view of Park (US Pat. No.: 5,448,199). Claims 228 – 230 and claims 501 – 503 depend from allowable claims 223 and 496, respectively. As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage" as recited in claims 223 and 496. Furthermore, it is respectfully submitted that Park fails to supply the missing teachings. Thus, it is believed that claims 228 – 230 and 501 – 503 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 228 – 230 and 501 – 503 be withdrawn.

Claims 231, 504, 512, and 515 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Tsay et al (US Pat. No.: 6,127,881) in view of Morishita. As to claims 231 and 504, the Examiner stated:

Tsay's figure 2 shows a multiplier circuit for generating a voltage signal higher than a reference voltage (V_{ref}). Thus, Tsay's figure 2 shows all limitations of the claims except for detail of the reference circuit. However, Morishita's figures 17 and 19 shows a reference circuit comprising an active reference circuit (VRG) for receiving

the external voltage and for producing a reference signal (V_{ref}) having a desired relationship with the external voltage, the active reference circuit comprising a current source (TP4) utilizing a current mirror for providing current to a diode stack (CVC) having an adjustable impedance, wherein the reference signal is dependent upon the external voltage (column 2, lines 17-20, teaches that the reference voltage V_{ref} is independent of the external power supply voltage EXV_{cc} when the voltage EXV_{cc} is at least at a prescribed voltage level. Thus, when the voltage EXV_{cc} is lower than the prescribed voltage level, the reference voltage is dependent of the external supply voltage EXV_{cc}); and a unity gain amplifier (CMP, DT). Morishita's figure 17 having the advantage of generating a stable reference signal. Therefore, it would have been obvious to one having ordinary skill in the art to use Morishita's figure 17 for Tsay's reference circuit for the purpose of having a stable reference signal.

Claims 231 and 504 both recite "wherein said signal is dependent upon said external voltage." As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage." Additionally, it is respectfully submitted that Tsay fails to supply the missing teachings. Thus, it is believed that claims 231 and 504 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 231 and 504 be withdrawn.

Claims 512 and 515 depend from allowable claims 231 and 504, respectively, and thus, are also in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 512 and 515 be withdrawn.

Claims 232 – 233 and 505 – 506 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Hayakawa (U.S. Pat. No.: 5,184,031) in view of Tsay and Morishita. Claims 232 – 233 and 505 – 506 depend from claims 231 and 504, respectively. It is respectfully submitted that Hayakawa fails to supply the missing teachings as discussed above in conjunction with claims 231 and 504. Thus, it is believed that claims 232 – 233 and 505 – 506 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 232 – 233 and 505 – 506 be withdrawn.

Claims 234 – 237, 247 – 250, 507 – 510, and 513 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Hayakawa in view of Tsay, Morishita and Park. The Examiner states:

The combination above shows all limitations of the claims except for a pullup stage for pulling up the reference voltage so as to substantially track the external voltage when the external voltage exceeds a second predetermined value. However, Park's figure 3 shows a reference circuit having a pullup stage (100) for pulling up the reference voltage in a burn-in mode to check long term performance of the circuit under condition of high voltage and high temperature. Therefore, it would have been obvious to one having ordinary skill in the art to connect Park's circuit 100, wherein circuit 100 is the "pullup stage", to the output of the Morishita's unity gain

amplifier for the purpose to check long term performance of the circuit under condition of high voltage and high temperature burn-in mode.

As discussed above, Hayakawa in view of Tsay and Morishita fail to teach the use of an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage" as recited in claims 231 and 504. It is respectfully submitted that Park fails to supply the missing teachings. Thus, it is believed that claims 234 - 237 and 507 - 510, which depend from allowable claims 231 and 504, respectively, are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 234 - 237 and 507 - 510 be withdrawn.

Additionally, claim 247 recites "wherein said reference signal is dependent upon said external voltage." Thus for the same reasons discussed above in conjunction with claims 234 - 237 and 507 - 510, it is believed that claim 247 is in condition for allowance. Claims 248 - 250 and 513 depend from allowable claim 247. Accordingly, it is respectfully requested that the rejection of claims 247 - 250 and 513 be withdrawn.

Claims 226 - 227 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 226 - 227 depend from allowable claim 223. Accordingly, it is respectfully requested that the objection to claims 226 - 227 be withdrawn.

Applicants have made a diligent effort to place the claims in condition for allowance. Accordingly, a Notice of Allowance for claims 223, 225 - 237, 247 - 250, 496, and 499 - 515 is respectfully requested. If the Examiner is of the opinion that the instant application is in condition for disposition other than through allowance, the Examiner is respectfully requested to contact applicants' attorney at the telephone number listed below so that additional changes may be discussed.

Respectfully submitted



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